

Research article

Review of *Campsicnemus* species from the Atlantic Ocean Islands (Diptera: Dolichopodidae)

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Abstract. New species *Campsicnemus flavissimus* sp. nov., *C. meridionalis* sp. nov., and *C. sanctaehelena* sp. nov. are described from St. Helena. A review and key to seven *Campsicnemus* species inhabiting Azores, Canary Is., Madeira and St. Helena are provided. A new status (as subspecies of *C. armatus* Zetterstedt, 1849) for *C. caffer* Curran, 1926 stat. nov. is proposed.

Key words. Dolichopodidae, *Campsicnemus*, Atlantic Ocean islands, new species, key.

Introduction

The genus *Campsicnemus* Haliday in Walker et al., 1851, belongs to the subfamily Sympycninae and numbers about 280 species with an extremely high diversity of endemic species in the Hawaiian Islands and French Polynesia (Evenhuis 2009; 2011). Grichanov (2009) listed and keyed recently 36 known Palearctic species, of which 3 species were recorded on Azores, Canary Is. and Madeira. Later one more Palearctic species of *Campsicnemus* was described from Astrakhan Region of Russia (Grichanov 2011).

The Afrotropical zoogeographical Region numbered 6 species (Grichanov 1998), of which 3 species were reported from St. Helena: *C. magius* Loew, 1845 apparently has a Palearctic origin; *C. atlanticus* Dyte, 1980 described from Azores and the Transpalearctic *C. armatus* Zetterstedt, 1849 were erroneously recorded from the South Atlantic islands by Vanschuytbroeck (1976), as shown in this paper.

Three new species discovered from the territory of St. Helena are here described and illustrated. In addition, a review of species known from the Atlantic Ocean islands is given. A key to males of Atlantic species is provided. With the new species described here, the Afrotropical fauna of *Campsicnemus* now totals 7 species.

Material and Methods

The holotypes and paratypes of the new species and other material cited are housed at the Royal Museum for Central Africa, Tervuren, Belgium (RMCA), the Zoological Museum of Moscow State University, Russia (ZMU), the Natal Museum, Pietermaritzburg, South Africa (NMSA) and the Finnish Museum of Natural History, Helsinki, Finland (MZH).

Specimens were studied and illustrated with a ZEISS Discovery V–12 stereomicroscope and an AxioCam MRc5 camera. Morphological terminology and abbreviations follow Grichanov (2007) and Cumming & Wood (2009). The relative lengths of the podomeres should be regarded as representative ratios and not measurements. Body length is measured from the base of the antenna to the tip of abdominal segment 7. Wing length is measured from the base to the wing apex. Male genitalia were not dissected and figured as they have low taxonomic value in the genus *Campsicnemus* (Evenhuis 2009; 2011). Information on world distribution for known species follows Grichanov (2003-2011).

Results

Classis Hexapoda Blainville, 1816
Ordo Diptera Linnaeus, 1758
Subordo Brachycera Schiner, 1862
Superfamilia Empidoidea Latreille, 1804
Epifamilia Dolichopodoidea Latreille, 1809
Familia Dolichopodidae Latreille, 1809
Subfamilia Sympycninae Aldrich, 1905
Genus *Campsicnemus* Haliday, 1851

Diagnosis (based on Old World species)

Tiny to medium-sized flies; face narrow in middle, extending downward; antennal arista-like stylus dorsal; usually 4, rarely 5 dorsocentral bristles; acrostichal setae absent or uniseriate; R_{4+5} and M_{1+2} more or less parallel; hind femur with subapical bristle; male legs usually modified and ornamented, rarely simple; female abdomen flattened dorsoventrally.

Campsicnemus meridionalis sp. nov.

Fig. 1

Material examined

Holotype

ST. HELENA: ♂, Centre, High Central Ridge, Cabbage Tree Road, 2500 ft, Mar. 1967 / Coll. Mus. Tervuren, Seconda Mission Zoologique à Sainte-Hélène, J. Decelle, N. et J. Leleup [RMCA].

Paratypes

ST. HELENA (one of the specimens with additional label: P. Vanschuytbroeck det. 1971, *Campsicnemus mirabilis* Frey): 3 ♂♂, same data as for holotype; ST. HELENA: 3 ♂♂, Centre, High Central Ridge, 2300-2600 ft, Feb. 1967 / Coll. Mus. Tervuren, Seconda Mission Zoologique à Sainte-Hélène, J. Decelle, N. et J. Leleup; ST. HELENA: 2 ♂♂, Centre, High Central Ridge, 2500 ft, Apr. 1967 / Coll. Mus. Tervuren, Seconda Mission Zoologique à Sainte-Hélène, J. Decelle, N. et J. Leleup; ST. HELENA: 1 ♂, Centre, High Central Ridge, 2600-2700 ft, 16 Sep. 1965 / Coll. Mus. Tervuren, Mission Zool. Ste-Hélène, P. Basilewsky, P.L.G. Benoit et N. Leleup [RMCA].

Etymology

From the Latin “southern”. Means the southernmost point of the genus’ distribution in the Atlantic Ocean.

Diagnosis

Mid femur with deep ventral subapical excavation; mid tibia and basitarsus densely covered with long setae along entire length; mid basitarsus about 1/3 the length of next segment; antennal postpedicel 3 times longer than high at base, with drawn-out apex.

Description**Male**

LENGTH (mm). Body 1.85, wing 2.3/0.65, antenna 0.6, hypopygium 0.2.

HEAD. (Fig. 1B). Frons shining blue-violet; ocellar and vertical bristles black, $2/3$ the length of antennal stylus; occiput and vertex metallic, brownish-grey pollinose; face with brown background, yellowish-grey pollinose, reduced to thin line at middle, in upper part and in lower part half as wide as height of postpedicel; palpus small, oval, dirty yellow, covered with white hairs and one dark seta; proboscis brownish, extending below eye in lateral view; antenna about as long as head height; scape and pedicel yellow; postpedicel light brown, long haired, about 3 times longer than high, with drawn-out apex; arista-like stylus black, basodorsal, pubescent; length ratio of scape to pedicel to postpedicel to stylus, $5/3/14/30$; postocular setae yellow, 2–3 upper postocular setae brown.

THORAX. Mesonotum and scutellum brown-black, with blue metallic reflection; pleura dark brown, grey pollinose, humeri light brown; thoracic setae black: 3 pairs of dorsocentrals (with posterior dorsocentral shorter and finer); 1 notopleural; 1 pair of strong scutellars; acrostichals absent; halter yellow.

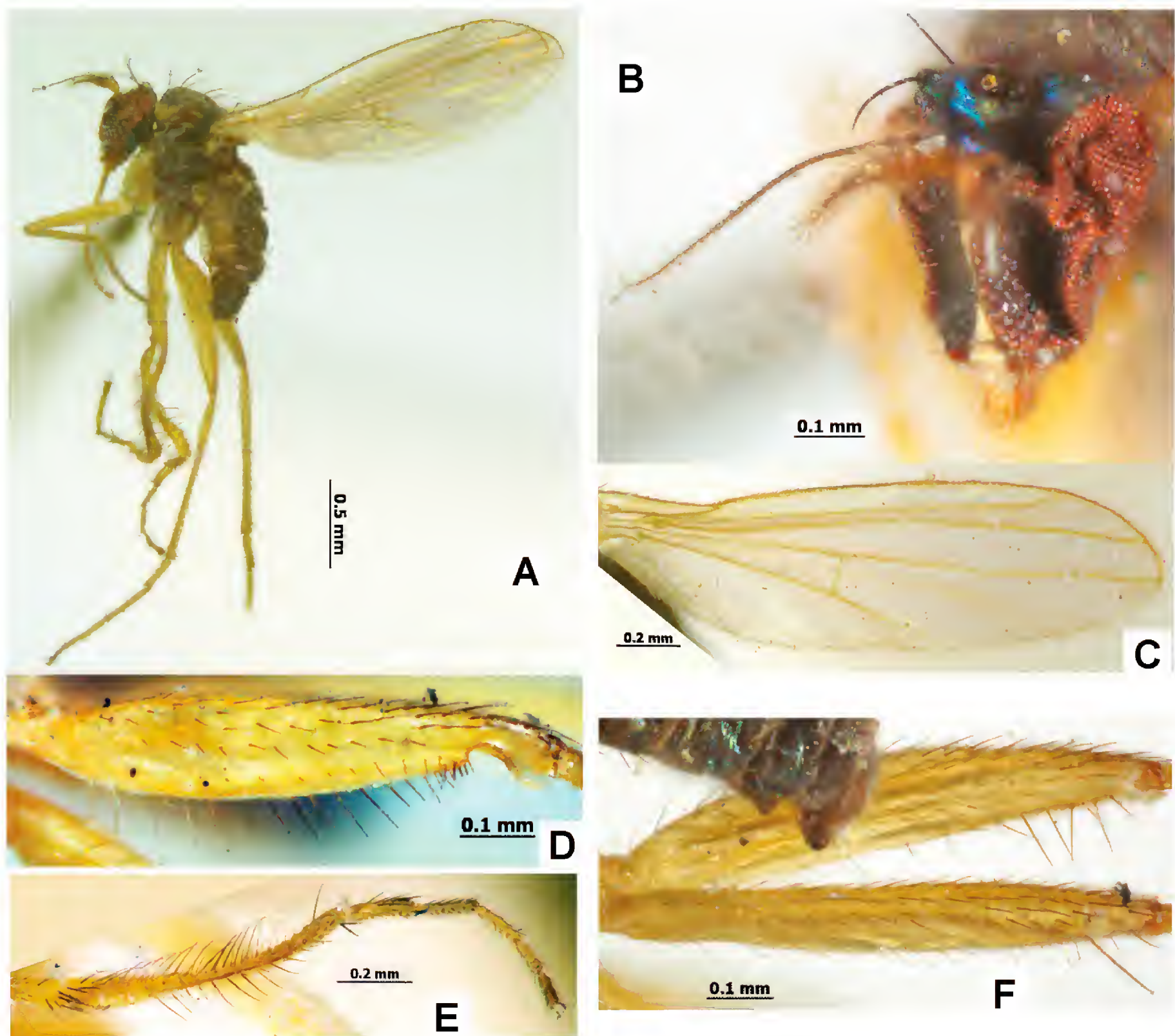


Fig. 1. *Campsicnemus meridionalis* sp. nov., ♂ holotype. A. habitus. B. head. C. wing. D. mid femur. E. mid tibia and tarsus. F. hind femora.

LEGS. Including fore and hind coxae yellow, mid coxa brown; 5th segments of all tarsi brown; fore leg simple, without remarkable setation; mid femur with flat ventral strip along entire length, with deep subapical ventral excavation, with almost complete posteroventral row of setae, half as long as height of femur; mid tibia laterally flattened and slightly thickened along entire length, with basoventral swelling covered with microscopic erect spinules, dense anterior and posterodorsal rows of long setae, 1.5–2 times longer than width of tibia, somewhat shorter on distal fourth, with 2–3 apicals; mid basitarsus with dorsal row of setae, about as long as diameter of basitarsus, and with black apicoventral spine, about 1/3 the length of next segment (Fig. 1E); hind leg practically simple; hind femur with single strong subapical anterior bristle, with row of about 5 long stiff subapical posteroventral cilia; hind tibia with 1 anterodorsal, 2 posterodorsals and 2–3 apicals. Fore leg length ratio (from tibia to tarsomere 5): 38/21/10/8/6/6, mid leg: 70/12/11/10/7/6, hind leg: 75/18/21/14/8/7.

WING. (Fig. 1C). hyaline; R_{4+5} and M_{1+2} almost straight and parallel behind level of *dm-cu*; ratio of cross-vein *dm-cu* to distal part of CuA_1 , 10/25; calypter yellowish, with brownish cilia.

ABDOMEN. Blackish-bronze, shining, weakly grey pollinose; with short black setae; terga 1–2 with white hairs laterally; hypopygium blackish-brown, with small brown cercus covered with white hairs and with simple black surstylus, not dissected.

Female

Unknown.

Differential diagnosis

Having subequal in length first two segments of mid tarsus and bearing strong apicoventral spine on mid basitarsus, the new species is related to *C. atlanticus*, distinctly differing from the latter in mid leg ornamentation (see key below).

Campsicnemus sanctaehelenae sp. nov.

Fig. 2

Material examined

Holotype

ST. HELENA: ♂, Centre, High Central Ridge, 2300-2600 ft, Feb. 1967 / Coll. Mus. Tervuren, Seconda Mission Zoologique à Sainte-Hélène, J. Decelle, N. et J. Leleup [RMCA].

Paratypes

ST. HELENA: 1 ♂, Centre, High Central Ridge, Cabbage Tree Road, 2500 ft, Mar. 1967 / Coll. Mus. Tervuren, Seconda Mission Zoologique à Sainte-Hélène, J. Decelle, N. et J. Leleup; ST. HELENA: 1 ♂, Centre, High Central Ridge, 2500 ft, Apr. 1967 / Coll. Mus. Tervuren, Seconda Mission Zoologique à Sainte-Hélène, J. Decelle, N. et J. Leleup [RMCA].

Etymology

The species is named for the island of origin.

Diagnosis

Mid tibia considerably dilated along entire length and curved; mid basitarsus with thick apical tooth, about 1/3 the length of next segment; postpedicel about 4 times longer than high, with drawn-out apex.

Description**Male**

Similar to *C. meridionalis* sp. nov. in all respects except as noted.

LENGTH (mm). Body 1.5, wing 1.9/0.6, antenna 0.6, hypopygium 0.2.

HEAD. Antennal postpedicel brown, long haired, about 4 times longer than high, with drawn-out apex (Fig. 2A); length ratio of scape to pedicel to postpedicel to stylus, 5/3/19/28.

LEGS. Including fore coxa yellow, mid coxa brown and hind coxa brownish at base; fore leg simple; fore femur with fine subapical posteroventral seta; fore tibia with fine subapical posterior seta; mid femur without flat ventral strip, without subapical ventral excavation, with anteroventral and posteroventral rows of setae in distal half, nearly as long as height of femur; mid tibia laterally flattened and strongly thickened along entire length, widest at 3/4, shallow ventral subapical excavation; mid tibia with row of short erect hairs on basal half, with group of about 10 black spinules ventrally at widest point, with sparse irregular anterior and posterodorsal rows of long setae, about as long as maximal width of tibia, with strong subapical ventral bristle; mid basitarsus thick and slightly curved, with thick black apicoventral tooth, about 1/3 the length of next segment (Fig. 2E); hind femur with single strong subapical anterior bristle, with row of about 5 long stiff ventral cilia on distal half, with few subapical posteroventral cilia. Fore leg length ratio (from tibia to tarsomere 5): 35/18/8/7/5/6, mid leg: 50/13/12/10/7/7, hind leg: 58/12/18/11/7/8.

WING. (Fig. 2B). hyaline; ratio of cross-vein *dm-cu* to distal part of CuA_1 , 9/22.

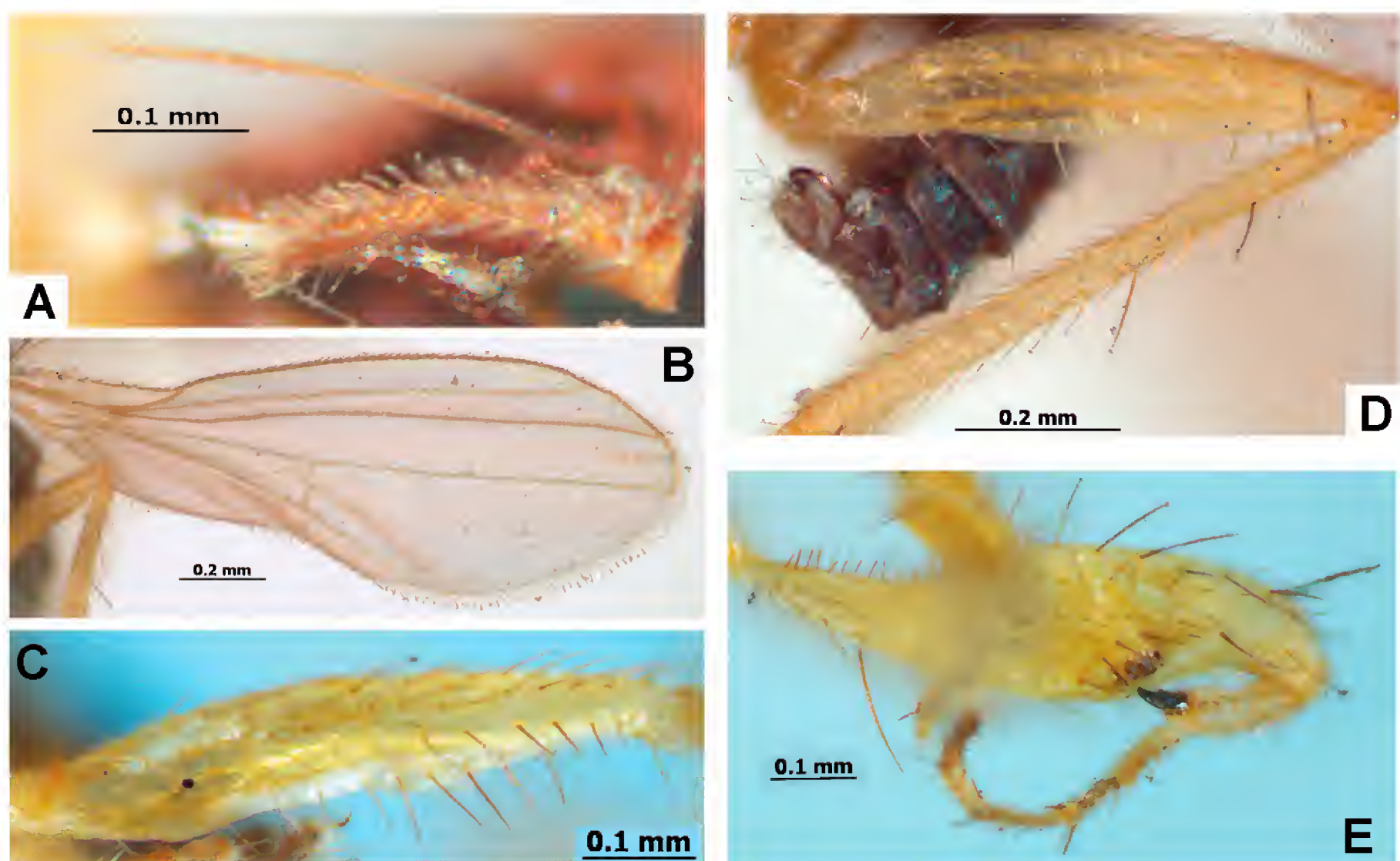


Fig. 2. *Campsicnemus sanctaehelenae* sp. nov., ♂ holotype. A. antenna. B. wing. C. mid femur. D. hind femur and tibia. E. mid tibia and tarsus.

Female

Unknown.

Differential diagnosis

Having subequal in length first two segments of mid tarsus and bearing strong apicoventral spine on mid basitarsus, the new species belongs to *C. atlanticus* group of species, being close to *C. meridionalis* sp. nov., but strongly differing in flattened and thickened mid tibia and mid leg ornamentation (see key below).

Campsicnemus flavissimus sp. nov.

Fig. 3

Material examined

Holotype

ST. HELENA: ♂, Centre, High Central Ridge, 2300-2600 ft, Feb.1967 / Coll. Mus. Tervuren, Seconda Mission Zoologique à Sainte-Hélène, J. Decelle, N. et J. Leleup [RMCA].

Paratype

ST. HELENA: 1 ♀, same data as for holotype [RMCA] (both specimens with additional label: P. Vanschuytbroeck det. 1971, *Campsicnemus armatus* Zett.).

Etymology

From the Latin “the yellowest”. Refers to the new species body coloration.

Diagnosis

Mid femur without ventral subapical excavation; mid tibia with erect ventral spinules and cilia along entire length; mid basitarsus 1.5 times longer than next segment.

Description

Male

LENGTH (mm). body 3.7, wing 4.3/1.4, hypopygium 0.4.

HEAD. Frons shining blue-violet; ocellar and vertical bristles long, black; postvertical seta in line with postocular setal row; occiput and vertex metallic, brownish-grey pollinose; face with brown background, yellowish-grey pollinose, reduced to thin line at middle; palpus small, oval, yellow, covered with white hairs and setae; proboscis brownish, extending below eye in lateral view; antenna with yellow scape and pedicel; postpedicel broken; lateral and lower postocular setae yellow, upper postocular setae black.

THORAX. Mesonotum light brown, weakly bluish shining; scutellum yellow; pleura yellow, weakly pollinose, with small triangular black spot and small rounded black spot below calypter; mesonotal setae black: 4 pairs of strong dorsocentrals; 2 notopleurals; 1 pair of strong scutellars; acrostichals absent; halter yellow.

LEGS. Including coxae yellow; 5th segments of tarsi brown; fore coxa with yellow hairs and 3 brown apical setae; mid and hind coxa each with 1 outer black seta; fore femur, tibia and basitarsus simple (other tarsomeres broken); fore tibia with 1 strong middorsal bristle and 1 short anterior subapical seta; mid femur with strong subapical posterior seta, densely covered with erect ventral cilia, more than half as long as height of femur; mid tibia slightly thickened in basal half, with short erect ventral spinules in basal half, with erect ventral hairs in distal half, with dense dorsal rows of long setae, 2-2.5 times longer than width of tibia, somewhat shorter on distal fourth, with 1 strong subapical anterior and 1 strong apical ventral setae; mid basitarsus with long dorsal setae, longish at apex, and with short black apicoventral

spine (Fig. 3C); hind leg practically simple; hind femur with single strong subapical anterior bristle, with 1 stiff subapical posteroventral cilia; hind tibia with 3 anterodorsals, 4 dorsals and 4 apicals. Mid leg length ratio (from tibia to tarsomere 5): 130/45/35/25/13/11, hind leg: 165/45/48/35/16/15.

WING. (Fig. 3B). hyaline; R_{4+5} and M_{1+2} almost straight and parallel behind level of *dm-cu*; ratio of cross-vein *dm-cu* to distal part of CuA_1 , 20/47; calypter yellow, with black setae.

ABDOMEN. Mostly yellow, shining, weakly pollinose; with black setae; terga 5–6 brownish; terga 1–2 with white hairs laterally; hypopygium brownish, with small yellow cercus covered with white hairs and with surstylus simple, black at apex, not dissected.

Female

LENGTH (mm). body 4.1, wing 4.7/1.5, antenna 1.2. Similar to male except lacking male secondary sexual characters, otherwise as follows: Head (Fig. 3A). Face yellowish-grey, at middle half as wide as face at clypeus; antennal postpedicel mostly yellow, brownish distally, as long as high at base, pubescent; arista-like stylus brown, with 1st segment thickened and 2nd segment pubescent; Length ratio of scape to pedicel to postpedicel to arista-like stylus (1st and 2nd stylomeres), 8/5/10/4/52. Mesonotum mostly yellow, brown between posterior 3 pairs of dorsocentrals; scutellum brown in middle of dorsal surface, with few white marginal hairs in addition to pair of strong bristles. Fore tibia with subequal middorsal and posterior subapical setae; mid femur with subequal anterior and posterior subapical setae; mid tibia with 4 anterodorsals, 1 posterodorsal, 2 ventrals and 4 apicals; hind tibia with 3 anterodorsals, 5 dorsals.

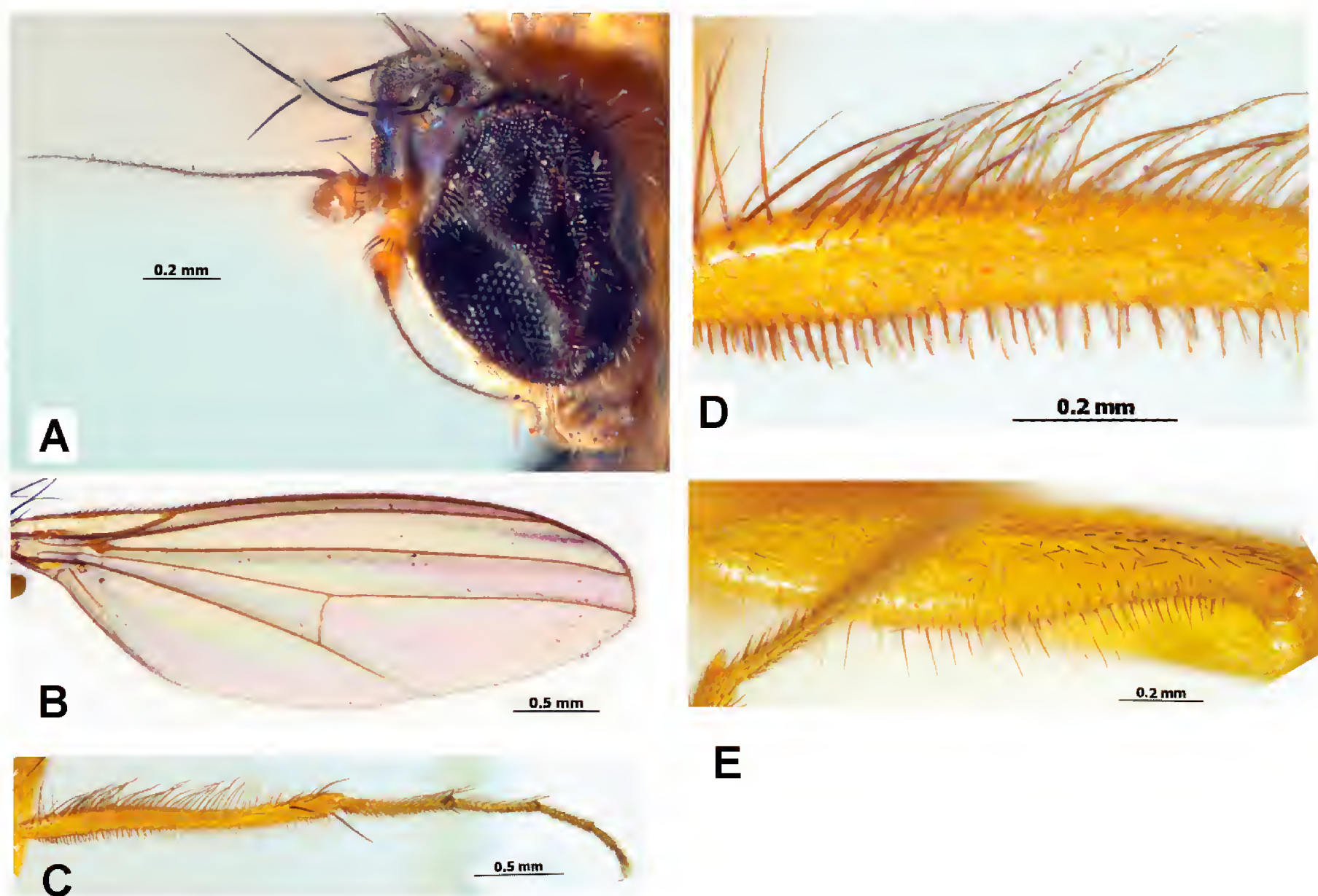


Fig. 3. *Campsicnemus flavissimus* sp. nov., ♂ holotype and ♀ paratype. A. ♀ head. B. ♂ wing. C. ♂ mid tibia and tarsus. D. ♂ mid tibia, basal part. E. ♂ mid femur.

Fore leg length ratio (from tibia to tarsomere 5): 80/50/26/19/10/8, mid leg: 140/55/32/20/13/11, hind leg: 165/43/48/30/16/10. Abdomen mostly yellow, narrowly brown along tergal margins; oviscapt brown, concealed.

Differential diagnosis

The new species belongs to *C. atlanticus* group of species, but being distinctly larger and having paler body coloration than other members of the group, strongly differing in mid leg ornamentation (see key below).

Campsicnemus armatus (Zetterstedt, 1849)

armatus armatus (Zetterstedt, 1849): 3093 (*Dolichopus*) (Haliday in Walker et al., 1851: 190). Type locality: Denmark: Rosenthal, Gryphium. Distribution: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Mongolia, The Netherlands, Norway, Poland, Russia (Arkhangelsk, Kamchatka, Karelia, Krasnoyarsk, Murmansk, Nenetsia, Ekaterinburg, Yakutia, Yamal), Slovakia, Sweden, Turkey, UK; [here excluded from St. Helena].

armatus deserti Vaillant, 1953: 11 (as var. of *C. armatus*), Negrobov, 1991: 59 (as a subsp. of *C. armatus*). Type locality: not given [Tassili n'Ajjer, Algeria]. Distribution: Algeria.

armatus caffer Curran, 1926: 15, **stat. nov.** Lectotype and paralectotype in NMSA (examined). Type locality: South Africa: Mpumalanga: Barberton. Distribution: South Africa, Namibia.

Remarks

The nominotypical subspecies inhabits mainly boreal and temperate belts of the Palearctic Region. *C. a. deserti* from North Africa and *C. a. caffer* from southern Africa inconspicuously differs in leg setation; they are also both slightly smaller than *C. a. armatus* (1.5-2 vs. 2.5 mm). Therefore, the two African subspecies may represent a different species with a remarkable disjunctive pattern of distribution. A male and females from St. Helena identified by Vanschuytbroeck (1976) as *C. armatus* [RMCA, examined], belongs apparently to different species as they have brownish yellow rather than black body, and a male and a female are described here as a new species, *C. flavissimus*. Therefore, the species is here excluded from St. Helena fauna.

Campsicnemus atlanticus Dyte, 1980

atlanticus Dyte, 1980: 224 (nom. nov. for *C. mirabilis* Frey, 1945, nec Grimshaw, 1902). Distribution: Azores; [here excluded from St. Helena].

mirabilis Frey, 1945: 42. Types in MZH (examined). Type locality: Azores: São Miguel, Terceira.

Remarks

The species is only known from Azores. A long series of specimens identified by Vanschuytbroeck (1976) as *C. mirabilis* belongs to two different species described here as new for science. Therefore, the species is here excluded from St. Helena fauna.

Campsicnemus crinitarsis Strobl, 1906

crinitarsis Strobl, 1906: 324. Type locality: Spain: Malgrat. Distribution: Algeria, France, Greece (Crete, North Aegean), Italy, Morocco, Spain (incl. Canary Is.).

Material

2 ♂♂, Canary Is.: Tenerife Is., park, 28.406 N, 16.570 W, 25-30 Mar. 2011 (N. Vikhrev) [ZMU]; 1 ♂, Morocco: SE of Essaouira, 31.20°N 9.50°W, pine forest, 27 Mar. 2009 (N. Vikhrev) [ZMU].

Remarks

The species seems to have Mediterranean origin, reaching to the Canary Is.

Campsicnemus curvipes (Fallén, 1823)

curvipes (Fallén, 1823): 20 (*Dolichopus*) (Haliday, in Walker et al., 1851: 189). Type locality: not given. Distribution: Abkhazia, Algeria, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece (incl. Crete), Hungary, Ireland, Italy, Latvia, Luxembourg, ?Macedonia, Morocco, The Netherlands, Norway, Poland, Portugal (Azores and Madeira), Romania, Russia (Adygea, Alania, Dagestan, Kabardino-Balkaria, Karelia, Karachai-Cherkessia, Krasnodar, Leningrad, Moscow, Pskov, Ryazan', Stavropol'), Slovakia, ?Slovenia, Spain (incl. Canary Is.), Sweden, Switzerland, Turkey, UK, Ukraine (Crimea, Odessa), "Yugoslavia".

Remarks

The species is rather common in Europe and Mediterranean Region, inhabiting also Canary Is., Azores and Madeira.

Campsicnemus magius (Loew, 1845)

magius (Loew, 1845): 392 (*Medeterus*) (Loew, 1857: 26). Type locality: Italy: Sicily. Distribution: Austria, Azerbaijan, Belgium, Bulgaria, Czech Republic, France, Germany, Hungary, Italy, Israel, Morocco, The Netherlands, ?Slovenia, Spain, Romania, Russia (Astrakhan, Ekaterinburg, Kabardino-Balkaria, Krasnodar, Rostov), Tajikistan, Turkey, Turkmenistan, UK, Ukraine (Odessa), Uzbekistan, "Yugoslavia", St Helena (?introduced).

Material

1 ♂, St Helena: Extrémité supérieure Rural Retreat Gut, 2000 ft, 11-21 Apr. 1967 [RMCA; examined].

Remarks

The species inhabits mainly temperate and subtropical belts of the Palearctic Region from Spain and UK to Tajikistan and Uzbekistan. A male identified by Vanschuytbroeck (1976) as *C. magius*, if not mislabeled, should be considered accidental introducent in the fauna of the St. Helena island.

Doubtful species

Campsicnemus cupreus (Macquart) in Webb & Berthelot, 1839: 107 (*Medeterus*) (Bezzi, 1903: 345), Becker, 1918: 86 (?syn. of *Campsicnemus crinitarsis* Strobl, 1906; unrecognized). Type locality: Spain: Canary Is.

Remarks

The *Medeterus cupreus* female was described with black face and palpus, being "1 ligne et demie" (i.e., more than 3 mm) in length, that does not correspond to any of Atlantic *Campsicnemus* species.

Key to *Campsicnemus* males from Atlantic Ocean islands

1. Femora and tibiae practically simple; fore and mid basitarsi bearing very long bristly hairs, and 2nd-5th segments of same tarsi with elongated hairs; 2nd segment of mid tarsus flattened ventrally; 2.0 mm (Canary Is.) *C. crinitarsis* Strobl, 1906
– Femora or tibiae modified or bearing bunches or rows of remarkable setae; tarsi differently setose, often modified.....2
2. Fore tibia strongly dilated; tarsal segments 1, 2 and 4 shortened, and 1st-3rd segments of fore tarsus bearing very long processes covered with long hairs; face golden-yellow; 3.0 mm (St. Helena)..... *C. magius* (Loew, 1845)
– Fore leg practically simple; face usually yellowish-grey.....3
3. Mid basitarsus much shorter than next segment; hind femur with ventral row of strong black bristles; face yellow brown; 2.0-2.75 mm (Azores, Canary Is. and Madeira)..... *C. curvipes* (Fallén, 1823)
– Mid basitarsus about as long as or longer than next segment; hind femur with at most fine pale setae; face yellowish-grey.....4
4. Mid tibia considerably dilated along entire length and curved; mid basitarsus with thick apical tooth; 1.5 mm (St. Helena)..... *C. sanctaehelena* sp. nov.
– Mid tibia not dilated or slightly thickened; mid basitarsus with at most thin apical spine.....5
5. Mid femur without ventral subapical excavation; mid tibia with erect ventral spinules and cilia along entire length; mid basitarsus 1.5 times longer than next segment; 3.7 mm (St. Helena).....
..... *C. flavissimus* sp. nov.
– Mid femur with deep ventral subapical excavation; mid tibia without erect ventral spinules and cilia; mid basitarsus not longer than next segment.....6
6. Mid tibia and basitarsus densely covered with long setae along entire length; antennal postpedicel 3 times longer than high at base, with drawn-out apex; 1.85 mm (St. Helena)
..... *C. meridionalis* sp. nov.
– Mid tibia with long setae in basal half only in addition to 3 strong anterodorsal bristles in distal part; mid basitarsus with short setulae; antennal postpedicel triangular, slightly longer than high at base; 2.2-2.5 mm (Azores)..... *C. atlanticus* Dyte, 1980

Discussion

The genus *Campsicnemus* is relatively well defined in the Old World. The borders of the taxon become rather obscure in the Hawaiian Islands and French Polynesia (Evenhuis 2005; 2009). The species described and reviewed here belong to the Palearctic species groups. Now seven *Campsicnemus* species are known from the Atlantic Ocean islands. Some more species may be found in the Cape Verde Islands that remains poorly studied. The St. Helena fauna numbers four species of the genus, of which *C. magius* apparently has a Palearctic origin, whereas three new species belong to the *C. atlanticus* group known originally by a single species described from Azores.

The mainly boreal and temperate Palearctic *C. armatus* is excluded from St. Helena fauna in this paper. *C. a. deserti* from North Africa and *C. a. caffer* from southern Africa are considered here as subspecies of *C. armatus* with a remarkable disjunctive pattern of distribution. They may have a common ancestor, and their real degree of separation (or similarity) may require molecular investigation. Increased sampling effort should provide specimens that are appropriate for future studies of these flies.

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References

- Becker T. 1918. Dipterologische Studien. Dolichopodidae. A. Paläarktischen Region. *Nova Acta Academiae Caesareae Leopoldinisch-Carolinae Germanicae Naturae Curiosorum* 104: 35-214.
- Bezzi M. 1903. Orthorrhapha Brachycera. In: Becker T., Bezzi M., Bischof J., Kertész K. & Stein P. (eds), *Katalog der paläarktischen Dipteren*. Volume II. Budapest: 1-396.
- Cumming J.M. & Wood D.M. 2009. Adult morphology and terminology [Chapter] 2. In: Brown B.V., Borkent A., Cumming J.M., Wood D.M., Woodley N.E. & Zumbado M.A. (eds), *Manual of Central American Diptera*. Volume 1. Ottawa: NRC Research Press: 9-50.
- Curran C.H. 1926. Records of African Dolichopodidae with descriptions of new species. *Revue zoologique africaine* 14 (1): 1-39.
- Dyte C.E. 1980. Some replacement names in the Dolichopodidae (Diptera). *Entomologica Scandinavica* 11: 223-224.
- Evenhuis N.L. 2005. A review of the genera comprising species of the genus *Eurynogaster sensu* Hardy & Kohn, 1964 in Hawai'i (Diptera: Dolichopodidae). *Zootaxa* 1017: 39-60.
- Evenhuis N.L. 2009. Review of *Campsicnemus* (Diptera: Dolichopodidae) of the Marquesas, French Polynesia, with description of four new species groups. *Zootaxa* 2004: 25-48.
- Evenhuis N.L. 2011. New Species of *Campsicnemus* from East Maui, Hawaiian Islands (Diptera: Dolichopodidae). In: Evenhuis N.L. & Eldredge L.G. (eds), *Records of the Hawaii Biological Survey for 2009-2010*. Bishop Museum Occasional Papers 9109: 15-22.
- Fallén C.F. 1823. *Monographia Dolichopodum Sveciae*. Lundae [=Lund]: 1-24.
- Frey R. 1945. Tiergeographische Studien, über die Dipterenfauna der Azoren. 1. Verzeichnis der bisher von den Azoren bekannten Dipteren. *Commentationes Biologicae* 8 (10): 1-114.
- Grichanov I.Ya. 1998. Two new species of *Campsicnemus* Haliday (Diptera: Dolichopodidae) from Tropical Africa. *International Journal of Dipterological Research* 9 (2): 109-113.
- Grichanov I.Ya. 2003–2011. *A check list of species of the family Dolichopodidae (Diptera) of the World arranged by alphabetic list of generic names* [online database]. Available from <http://grichanov.fortunecity.com/Genera3.htm> [accessed 10 Dec. 2011].
- Grichanov I.Ya. 2007. A checklist and keys to Dolichopodidae (Diptera) of the Caucasus and East Mediterranean. *Plant Protection News. Supplement*: 1-160.
- Grichanov I.Ya. 2009. A new species of *Campsicnemus* Haliday from Azerbaijan with a key to the Palearctic species of the genus (Diptera: Dolichopodidae). *Far Eastern Entomologist* 198: 1-16.
- Grichanov I.Ya. 2011. New species and new records of Dolichopodidae (Diptera) from Astrakhan Region of Russia. *Russian Entomological Journal* 20 (1): 75-80.
- Loew H. 1845. Beschreibung einiger vom Herrn Pastor Hoffmeister zu Nordshausen aufgefundenen, merkwürdigen Dipteren. *Stettiner Entomologische Zeitung* 6: 392-402.
- Loew H. 1857. Neue Beiträge zur Kenntniss der Dipteren. Fünfter Beitrag. *Programme der Königlichen Realschule zu Meseritz*: 1-56.

Negrobov O.P. 1991. Family Dolichopodidae, In: Sóos Á. & Papp L. (eds), *Catalogue of Palaearctic Diptera. Volume 7. Dolichopodidae-Platypezidae*. Akadémiai Kiadó, Budapest: 11-139.

Strobl G. 1906. Spanische Dipteren. II. *Memorias de la Real Sociedad Española de Historia Natural* III (5a, 6a): 271-422.

Vaillant F. 1953. Sur quelques Dolichopodidae du Tassili n'Ajjer. *Mission scientifique en Tassili des Ajjer (1949): 1. Recherches zoologiques et médicales. Les fourmis du Tassili des Ajjer (Sahara central)*: 3-18.

Vanschuytbroeck P. 1976. La Faune terrestre de l'Île de Sainte-Hélène (Troisième Partie). Fam. Dolichopodidae. *Annales Musee Royal de l'Afrique Centrale* ser. 8 (215): 49-57.

Walker F., Stainton H.T. & Wilkinson S.J. (eds) 1851. *Insecta Britannica, Diptera*, vol. 1: 1-314. <http://dx.doi.org/10.5962/bhl.title.7825>

Webb P.B. & Berthelot S. 1839. *Histoire naturelle des îles Canaries, II, 2. Zoologie*: 1-119.

Zetterstedt J.W. 1849. *Diptera Scandinaviae disposita et descripta*. Officina Lundbergiana, Lundae [= Lund], 8: 2935-3366.

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